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Tropical Products Institute

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Composite flour technology bibliography

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This report was produced by the Tropical Products Institute, a British Government Organisation which helps developing countries to derive greater benefit from their renewable resources.

It specialises in post-harvest problems and will be pleased to answer requests for information and advice. Reports such as this one are often written as the result of an enquiry.

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Preface

The habit of eating bread and similar foods made from wheat has spread throughout most of the world. Unfortunately wheat cannot be grown in the humid tropics so that supplies must be imported and be paid for with often scarce foreign currency. It would therefore be to the advantage of wheat-importing countries if these imports could be lessened or eliminated, without reducing the consumption of the retail product. It has been found that the use of non-wheat materials as partial, or total, substitutes for wheat is possible: indeed since ancient times whenever wheat was scarce, non-wheat flours from say, barley and potatoes have been incorporated into bread. These mixtures are now called 'composite' flours, whether or not they contain wheat.

The study of composite flours is fairly recent and has been carried out with the main object of helping the developing countries. The use of protein concentrates to enrich bread is also a recent field of study, but though the developing countries could well benefit from this work, its motivation has usually been the relief of malnutrition among the poor of the metropolitan countries.

The research programme on composite flours at the Tropical Products Institute was begun at the request of FAO some three years ago, in conjunction with many overseas organisations.

This Bibliography has been compiled as a result of the study of composite flours at TPI and covers the use of non-wheat flours, mostly of tropical origin, as total or partial substitutes for wheat in bread and baked goods manufacture; as well as starch sources (cereals, root crops, etc.) protein sources are also covered. The related fields of pasta and artificial rice are surveyed though not perhaps so comprehensively.

There is a classification under which the references are listed as an aid to easier research. We hope that this Bibliography will prove useful, especially to the peoples of the developing countries.

This is a first edition which we hope to bring up-to-date from time to time, and we therefore trust that any omission will be brought to our attention.

Classification of references

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General

FOOD AND AGRICULTURE ORGANIZATION
1970 Composite flour programme. Development of bakery products and paste goods from cereal and non-cereal flours, starches and protein concentrates. *FAO Documentation Package* No. 1, 1970, pp various.

includes:
DENDY, D.A.V.
1970 Work on composite flours conducted in the test bakery of the Tropical Products Institute, Culham, Abingdon, Berks, England. *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/20, 3 pp.

DENDY, D.A.V., CLARKE, P.A. and JAMES, A.W.
1970 The use of blends of wheat and non-wheat flours in breadmaking. *Trop. Sci.,* **12** (2), 131 – 142.

FOOD AND AGRICULTURE ORGANIZATION.
1969 Bread from composite flours. *FAO Agric. Services Bull.* No. 4, 6 pp.

HOOVER, W.J.
1970 Research on high protein breads. *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/12, 4 pp.

JONGH, G.
1970 The development of composite flours. *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/21, 1 p.

KIM, J.C. and RUITER, D. de
1968 Bread from non-wheat flours. *Fd Technol., Champaign,* **22** (7), 867 – 878.

KIM, J.C. and RUITER, D. de
1969 Bakery products with non-wheat flours. *Bakers' Dig.,* **43** (3), 58 – 63.

MADE, C. van der
1970 Bread from composite flours: progress report with reference to Brazil. *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/19, 3 pp.

MEISEL, H.
1970 Composite flours. *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/11.

PERTEN, H.
1969 Étude sur la fabrication de pain de type Francais. *Rep. Institut de Technologie Alimentaire* (Dakar, Senegal), AGS: SF/SEN 5, 51 pp.

PRINGLE, W., WILLIAMS, A. and HULSE, J.H.
1969 Mechanically developed doughs from composite flours. *Cereal Sci. Today,* **14** (3), 114 – 118.

HEIN, R.
1970 Storage of breadflour containing cassava. (In German). *Brot Geback,* **24** (1), 20.

INGRAM, J.S.
1971 Selected bibliography on cassava. *Trop. Prod. Inst. Rep.* G. 51, 35 pp.

JONGH, G. 1961 The formation of dough and bread structures. I: The ability of starch to form structures and the improving effect of glyceryl monostearate. *Cereal Chem.*, **38**, 140 – 152.

McCANCE, R.A. and WIDDOWSON, E.M. 1956 *Breads white and brown: their place in thought and social history.* London: Pitman Medical, 174 pp.

WEGMANN, K. 1970 Investigations of the storage stability of manioc flour. (In German). *Brot Geback,* **24** (1), 16 – 18.

Bread

GENERAL

ANON. 1918 War breads in various lands: a comparison of the regulations. *Milling,* **50** (25), 529.

ANON. 1969 Brazil: wheat substitutes for bread could save imports. *Span,* **12** (2), 63 – 64.

ANON. 1970 New bread for Brazil has been developed by Tropical Centre for Food Research and Technology. *Fd Engng,* **42** (9), 17.

ANON. 1970 Investigation on composite flour for bread and biscuit making. (In Spanish). *Revta Inst. Invest. technol., Bogota,* **12** (66), 5 – 6.

BAINS, G.S. and TARA, K.A. 1968 Project C-9/152: To develop improved types of bread. *A. Rep. Cent. Fd technolog. Res. Inst. 1967,* p 12. Mysore: CFTRI, 121 pp.

DAY, F.C. 1969 Notes on baking technology. *Reunion Latino – Americana de especialistas en la elaboracion de harinas y panificacion,* pp 75 – 90. Instituto de Technologia Agricola y de Alimentacion, Ministerio de Agricultura, Brazil, 10–14 March 1969.

DENDY, D.A.V. and CLARKE, P.A. 1969 Interim report on the use of non-wheat flour in breadmaking. *Trop. Prod. Inst. Rep.* G50, 26 pp.

DENDY, D.A.V. 1970 Work on composite flours conducted in the test bakery of the Tropical Products Institute, Culham, Abingdon, Berks, England. *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/20, 3 pp.*

DENDY, D.A.V., CLARKE, P.A. and JAMES, A.W. 1970 The use of blends of wheat and non-wheat flours in breadmaking. *Trop. Sci.,* **12** (2), 131 – 142.*

FOOD AND AGRICULTURE ORGANIZATION. 1969 Bread from composite flour. *FAO Agric. Services Bull.* No. 4, 6 pp.*

*Also available in: *FOOD AND AGRICULTURE ORGANIZATION* 1970. Composite flour programme. Development of bakery products and paste goods from cereal and non-cereal flours, starches and protein concentrates. *FAO Documentation Package* No. 1, 1970, pp various.

FOOD AND AGRICULTURE ORGANIZATION.
1970 Composite flour programme. Development of bakery products and paste goods from cereal and non-cereal flours, starches and protein concentrates. *FAO Documentation Package* No. 1, 1970, pp various.

FOOD AND AGRICULTURE ORGANIZATION.
1971 Blended bread helps developing countries make foreign exchange savings. *FAO News Feature,* NF/71/4, Nu/3, 2 pp.

GAERTNER, E. Breadstuffs from fir (*Abies balsamea*). Econ. Bot., **24** (1), 69 – 72.
1970

JONGH, G., SLIM, T. and GREVE, H.
1968 Bread without gluten. *Bakers' Dig.,* **42** (3), 24 – 29.

JONGH, G. The development of composite flours. *Rep. FAO/Industry Cooperative*
1970 *Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/21, 1 p.*

KENT-JONES, D.W. and AMOS, A.J.
1969 Bread without flour. *Newsletter of D.W. Kent-Jones and A.J. Amos Consultancy,* May 1969, No. 428, 2 pp.

KIM, J.C. and RUITER, D. de
1968 Bread from non-wheat flours. *Fd Technol., Champaign,* **22** (7), 867 – 878.*

KIM, J.C. and RUITER, D. de
1969 Bakery products with non-wheat flour. *Bakers' Dig.* **43** (3), 58 – 63.*

KIM, J.C. and RUITER, D. de
1969 Baking products from non-wheat flours: a survey of a study made in the Netherlands. *Reunion Latino – Americana de especialistas en la elaboracion de harinas y panificacion,* pp 13 – 25. Instituto de Technologia Agricola y de Alimentacion, Ministerio de Agricultura, Brazil, 10–14 March 1969.

MADE, C. van der Bread from composite flours: progress report with reference to Brazil.
1970 *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/19, 3 pp.*

MEISEL, H. Composite flours. *Rep. FAO/Industry Cooperative Programme on*
1970 *Food Industries and Marketing Subgroup,* AGS: MISC/70/11.*

NIGERIA, FEDERAL INSTITUTE OF INDUSTRIAL RESEARCH, OSHODI.
1970 Project 13.14 – Composite flour. *Quart. Progress Rep. Fed. Inst. ind. Res. Oshodi,* Jan–March 1970, pp 12 – 18 and April–June 1970, pp 13 – 18.

PERTEN, M.H. Non-cereal bread from 'composite flours'. *FAO/WHO/UNICEF/PAG*
1967 *Meeting Document,* 10/117, 12/14 Oct. 1967, 7 pp.

PERTEN, H. Étude sur la fabrication de pain de type Francais. *Rep. Institut de*
1969 *Technologie Alimentaire* (Dakar, Senegal), AGS: SF/SEN 5, 51 pp.*

POMERANZ, Y. Germ bread. *Bakers' Dig.* **44** (6), 30 – 33.
1970

---

*Also available in: *FOOD AND AGRICULTURE ORGANIZATION* 1970. Composite flour programme. Development of bakery products and paste goods from cereal and non-cereal flours, starches and protein concentrates. *FAO Documentation Package* No. 1, 1970, pp various.

POMERANZ, Y. 1970 Phosphatides in baking wheat germ bread. *Fd Technol., Champaign,* **24** (8), 927 – 928.

PRINGLE, W., WILLIAMS, A. and HULSE, J.H. 1969 Mechanically developed doughs from composite flours. *Cereal Sci. Today,* **14** (3), 114 – 118.*

SPRIGGS, E.I. and WEIR, A.B. 1971 The digestibility of bread made from two parts wheat and one part oats, barley, maize or rice. *Lancet,* 10 November 1971, 724 – 726.

TROPICAL PRODUCTS INSTITUTE. 1971 Proceedings of a symposium on the use of non-wheat flour in bread and baked goods manufacture. (Held at the Tropical Products Institute, 27 November 1970). *Trop. Prod. Inst. Rep.* G62, 33 pp.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION. 1971 Bread before cakes is good for national economy. *UNIDO Press Release,* Feature No. 4, 2 pp.

CASSAVA AND ROOTS

BENNION, E.B. 1967 Use of potatoes in bread. *Breadmaking: its principles and practice.* 4th edn. London: Oxford University Press, 391 pp.

COURSEY, D.G. 1967 *Yams: an account of the nature, origins, cultivation and utilization of the useful members of the Dioscoreaceae.* London: Longmans (Tropical Agriculture Series), 230 pp.

GORE, H.C. 1923 The value of sweet potato flour in breadmaking. *Ind. Engng Chem. ind. Edn,* **15** (12), 1238.

JAIN, N.L., SINGH, B., and LAL, G. 1951 Preparation and uses of sweet potato flour. *J. sci. ind.* Res., **10** (A), 332 – 333.

LUNA de la FUENTE, R. 1960 Experiments in breadmaking from flour mixtures of wheat and three varieties of sweet potato. (In Spanish). *Boln trim. Exp. agropec.,* **9** (3), 10 – 13.

MARTIIS, P. de 1969 The effect of additions of cassava starch, cornflour and pre-cooked cornflour on the baking quality of commercial wheat flours. (In Spanish). *Revta Inst. Invest. technol., Bogota,* **11** (58), 9 – 18.

PLAUT, M. and ZELZBUCK, B. 1958 Use of sweet potatoes for flour and bread. *Ktavim,* 8 (1–2), 77 – 91.

ROTSCH, A. 1969 The baking properties of cassava meal. *Brot Geback,* **23** (16), 121 – 122.

SALAMAN, R.N. 1970 *The history and social influence of the potato.* Chaps. XXV–XXVII. London: Cambridge University Press, 686 pp.

SAMMY, G.M. 1970 Studies in composite flour: the use of sweet potato flour in bread and pastry making. *Trop. Agric., Trin.,* **47** (2), 115 – 125.

*Also available in: *FOOD AND AGRICULTURE ORGANIZATION* 1970. Composite flour programme. Development of bakery products and paste goods from cereal and non-cereal flours, starches and protein concentrates. *FAO Documentation Package* No. 1, 1970, pp various.

SINGH, R., RAFIQUE, M. and BAINS, G.S.
1953 Investigations on the preparation and use of sweet potato and groundnut cake flours in conjunction with wheat for leavened bread (dabal roti) and chapaties. *Indian J. agric. Sci.*, **23** (2), 139 – 146.

WARE, L.M., HARRIS, H. and MARK, M.S. van de
1947 Baking with sweet potato flour. *Fd Ind.*, **19**, 101, 200, 202 (Vol. pp 1365, 1464, 1466).

CEREALS

ANON.
1965 Some notes on the corn loaf approach. *S. Afr. Bak. Miller*, **33** (1), 5 – 6.

AVANZI, E. and GRAFF, G.
1939 Flour from sweet sorghum and maize in fermented bread. (In Italian). *Industria saccar. ital.*, **32** (5), 273 – 278.

BALLSCHMIETER, H.M.B. and VLIETSTRA, H.
1963 The use of maizemeal in fermented wheat breads. (In German). *Brot Geback*, **17** (3), 44 – 52.

BALLSCHMIETER, H.M.B. and VLIETSTRA, H.
1965 The use of milled maize products in making bread with wheat flour. (In German). *Brot Geback*, **19** (8), 153 – 158.

BALLSCHMIETER, H.M.B. and VLIETSTRA, H.
1968 Yeasted white loaf containing 50 per cent maize. (In German). *Brot Geback*, **22** (4), 66 – 71.

BORASIO, L. Rice flour in panification: conclusions and deductions. (In Italian).
1931. *G. Risic.*, **21** (4), 55 – 59.

BORASIO, L. Panification and bakery products with admixture of rice flour. (In
1931 Italian). *G. Risic.*, **21** (9), 136 – 139.

BORASIO, L. Convincing panification experiments with admixture of brown rice.
1931 (In Italian). *G. Risic.*, **21** (11), 169 – 173.

BORASIO, L. The use of substitutes in panification. (In Italian). *G. Risic.*, **23** (9),
1933 193 – 212.

BORASIO, L. Sorghum as a food and as a substitute in fermentation. (In Italian).
1937 *G. Risic.*, **27** (1), 7 – 12.

DENDY, D.A.V., JAMES, A.W. and CLARKE, P.A.
1971 The use of sorghum as a diluent for wheat flour in breadmaking. *Sorghum Newsletter*, **14**, 22.

DOGGETT, H. *Sorghum.* London: Longmans (Tropical Agriculture Series), 430 pp.
1970

HART, M.R. et al Bread from sorghum and barley flours. *J. Fd Sci.*, **35** (5), 661 – 665.
1970

LITTLEWOOD, A. Corn bread. *Baker Confectr*, **146** (7), 215 – 216, 218.
1964

MATTHEWS, R.H., SHARPE, E.J. and CLARK, W.M.
1970 Some functional properties of processed corn meal related to use in bread, beverages and porridges. *Cereal Sci. Today,* **15** (7), 208 – 210.

METUCHEN, N.J. 1967 *The millets: a bibliography of the world literature covering the years 1930–1963.* Washington, D.C.: George Washington University Scarecrow Press (Biological Sciences Communication Project), 154 pp.

METUCHEN, N.J. 1967 *Sorghum: a bibliography of the world literature covering the years 1930–1963.* Washington, D.C.: George Washington University Scarecrow Press (Biological Sciences Communication Project), 301 pp.

MILLER, O.H. and BURNS, E.E.
1970 Starch characteristics of selected grain sorghums as related to human foods. *J. Fd Sci.,* **35** (5), 666 – 668.

ROONEY, L.W., GUSTAFSON, C.D. and SULLINS, R.D.
1970 Influence of brown and yellow grain sorghums on attributes of products from white grain sorghum. *Cereal Sci. Today,* **15** (7), 206 – 207.

SENDOYA, G.S. 1970 Technological properties of three varieties of rice. (In Spanish). *Revta Inst. Invest. tecnol., Bogota,* **12** (68), 18 – 34.

WALL, J.S. and ROSS, W.M.
1970 *Sorghum, production and utilisation.* Westport, Conn.: Avi, 702 pp.

PROTEIN SUPPLEMENTATION

ANON. 1970 Bread fortified with soya bean flour or powdered milk. *Cereal Sci. Today,* **15** (12), 412.

ANON. 1970 A richer bread. *Chem. Engng. News,* **48** (43), 11.

ANON. 1970 'Vita L-Lysine' enrichment of bread. *Foreign Agric.,* **8** (19), 11.

ANON. 1970 Slimming foods: Part I. *Retail Bus.,* No. 151, 44 – 51.

BAINS, G.S. and PARPIA, H.B.
1967 Production, consumer acceptance and marketing of foodgrain substitutes of improved protein status. (Paper presented at *Int. Sym. on protein foods and concentrates, CFTRI, Mysore, India, June/July, 1967).*

BAINS, G.S. 1970 Baked products of improved protein status. *Proc. Seminar on scientific utilisation of wheats, New Delhi, India, 1970,* pp 39 – 42.

BROWN, J.W. et al 1959 The effect of lysine supplementation on the protein efficiency of high-protein breads. *Cereal Chem.,* **36**, 545 – 553.

CROSSLEY, E.L. 1969 The addition of dried skimmed milk to bread. *Int. Dairy Fed. A. Bull,* 1969, (3), 30.

EHLE, S.R., HAUSE, N.L. and PAUL, D.E.
1959 Taste and texture evaluation of lysine-supplemented baked products. *Cereal Sci. Today,* **4** (3), 74 – 76.

EHLE, S.R. and JANSEN, G.R.
1965 Studies on breads supplemented with soy and nonfat dry milk and lysine: I. Physical and organoleptic properties. *Fd Technol., Champaign,* **19** (9), 1435 – 1439.

FINNEY, K.F., RUBENTHALER, G. and POMERANZ, Y.
1963 Soy – product variables affecting bread making. *Cereal Sci. Today,* 8 (5), 166 – 168, 183.

FINNEY, K.F. and SHROGREN, M.D.
1971 Surfactants supplement each other, make foreign proteins compatible in breadmaking. *Bakers' Dig.,* **45** (1), 40 – 41.

HEATH, D.J. and HAWLEY, H.B.
1964 Proteinaceous materials, farinaceous compositions incorporating them, and baked products thereof. *UK Patent Specification,* No. 1, 074, 087, 30 July 1964.

HOOVER, W.J.
1970 Research on high protein breads. *Rep. FAO/Industry Cooperative Programme on Food Industries and Marketing Subgroup,* AGS: MISC/70/12, 4 pp.*

JANSEN, G.R. and EHLE, S.R.
1965 Studies on breads supplemented with soy, nonfat dry milk and lysine. II Nutritive value. *Fd Technol., Champaign,* **19** (9), 1439 – 1442.

MATTHEWS, R.H. et al
1970 The use of some oilseed flours in bread. *Cereal Chem.,* **47** (2), 181 – 189.

MILNER, M. (ed.)
1969 Protein enriched cereal food for world needs: Part V Bread, pp 174 – 198. St. Pauls, Minn.: American Association of Cereal Chemists, 343 pp.

POMERANZ, Y.
1969 High protein supplements in breadmaking. *Bakers' Dig.,* **43** (5), 39 – 40, 65.

POMERANZ, Y., SHOGREN, M.D. and FINNEY, K.F.
1969 Improved breadmaking properties with glycolipids: I Improving soy products with sucroesters. *Cereal Chem.,* **46** (5), 503 – 511.

POMERANZ, Y., SHOGREN, M.D. and FINNEY, K.F.
1969 Improved breadmaking properties with glycolipids: II Improving various protein enriched products. *Cereal Chem.,* **46** (5), 512 – 518.

POMERANZ, Y., CARVAJAL, M.J. and HOSENEZ, R.C.
1970 Wheat germ in breadmaking: I Composition of germ lipids and germ protein fractions. *Cereal Chem.* **47** (4), 373 – 380.

POMERANZ, Y., CARVAJAL, M.J. and SHOGREN, M.D.
1970 Wheat germ in breadmaking: II Improving breadmaking properties by physical and chemical methods. *Cereal Chem.,* **47** (4), 429 – 437.

POMERANZ, Y.
1970 Protein-enriched bread. *CRC Crit. Rev. Fd Technol.,* **1** (3), 453 – 478.

---

* Also available in: *FOOD AND AGRICULTURE ORGANIZATION* 1970. Composite flour programme. Development of bakery products and paste goods from cereal and non-cereal flours, starches and protein concentrates. *FAO Documentation Package* No. 1, 1970, pp various.

ROSENBERG, H.R., ROHDENBURG, E.L. and ECKERT, R.E.
1960 Supplementation of bread protein with lysine and threonine, *J. Nutr.*, **72**, 423 – 428.

SCHLOSSER, G.C. and DAWSON, E.H.
1969 Cottonseed flour, peanut flour and soy flour: formulae and procedures for family and institutional use in developing countries. *Rep. United States Dept. Agric.*, July 1969, ARS 61 – 7, 50 pp.

SHEHARA, N.A. and FRYER, B.A.
1970 Effect of chickpea flour on protein quality. *Cereal Chem.*, **47** (6), 663 – 670.

SIDWELL, V.D. and HAMMERLE, O.A.
1970 Changes in physical and sensory characteristics of doughs and of bread containing various amounts of fish protein concentrate and lysine. *Cereal Chem.*, **47** (6), 739 – 745.

TSEN, C.C., HOOVER, W.J. and PHILLIPS, D.
1971 High protein breads: use of sodium stearoyl-2-lactylate and calcium stearoyl-2-lactylate in their production. *Bakers' Dig.*, **45** (2), 20 – 23, 26, 74.

TURRO, E.J. and SIPOS, E.
1968 Effects of various soy protein products on bread characteristics. *Bakers' Dig.*, **42** (6), 44 – 50, 61.

NUTRITIONAL ASPECTS

DESHPANDE, P.D., HARPER, A.E. and ELVEHJEM, C.A.
1957 Nutritional improvement of wheat flour with protein and amino acid supplements. *J. Nutr.*, **62**, 503 – 512.

FLODIN, N.W.
1959 Relation of lysine content to protein quality of wheat-based foods. *Cereal Sci. Today*, **4** (2), 44 -- 48.

HOWARD, H.W. et al
1958 The nutritive value of bread flour proteins as affected by practical supplementation with lactalbumin, nonfat dry milk solids, soybean proteins, wheat gluten and lysine. *J. Nutr.* **64**, 151 – 165.

HUTCHINSON, J.B., MORAN, T. and PACE, J.
1959 The nutritive value of bread protein as influenced by the level of protein intake, the level of supplementation with L-lysine and L-threonine, and the addition of egg and milk proteins. *Br. J. Nutr.*, **13** (2), 151 – 163.

JANSEN, G.R., EHLE, S.R. and HAUSE, N.L.
1964 Studies on the nutritive loss of supplemental lysine in baking: I Loss in a standard white bread containing four per cent nonfat dry milk. *Fd Technol., Champaign*, 18 (3), 367 – 371.

JANSEN, G.R., EHLE, S.R. and HAUSE, N.L.
1964 Studies on the nutritive loss of supplemental lysine in baking: II Loss in water bread and in breads supplemented with moderate amounts of nonfat dry milk. *Fd. Technol., Champaign*, **18** (3), 372 – 375.

JANSEN, G.R.
1969 Total protein value of protein – and amino acid – supplemented bread. *Am. J clin. Nutr.*, **22** (1), 38 – 43.

JONES, D. BREESE and DIVINE, J.P.
1944 The protein nutritional value of soybean, peanut, and cottonseed flours and their value as supplements to wheat flour. *J. Nutr.*, **28**, 41 – 49.

ROTSCH, A.
1967 Technical problems of dietary baked products. (In German). *Brot Geback*, **21** (1), 1 – 4.

SUBRAHMANYAN, V. et al
1961 Development and evaluation of processed foods based on edible peanut flour and protein. *Progress in meeting protein needs of infants and pre-school children*, pp 227 – 245. Proc. Int. Con. of the Committee on Protein Malnutrition, Food and Nutrition Board, and the Nutrition Study Section, National Institute of Health. Washington, D.C.: National Academy of Sciences – National Research Council, Pub. 843.

TOSELLO, A.
1970 Flours in Brazilian nutrition. (In Portuguese). *Bolm Inst. Technol. Alimentos*, 1970, **(21)**, 1 – 8.

Biscuits

BAINS, G.S., BHATIA, D.S. and SUBRAHMANYAN, V.
1963 Studies on protein-rich biscuits based on peanut flour. *J. Proc Oil Technol. Ass. India*, **18** (Part II), 219 – 224.

BUCHANAN, R.A. The Australian milk biscuit. *Dairy Inds*, **34** (11), 729 – 730.
1969

CHAPMAN, L.P.J. et al
1966 The New Zealand milk biscuit. *N.Z.J. Dairy Technol.*, **1** (1), 20 – 22.

CHAPMAN, L.P.J. The story of the New Zealand milk biscuit. *Dairy Inds*, **33** (6),
1968 379 – 383 and **33** (7), 468 – 472.

MULLER, L.L. et al
1966 The manufacture of specialised casein products. *17th Int. Dairy Congress*, E/F, 69 – 74 (DSA).

SUBRAHMANYAN, V. et al
1958 Effect of baking on the nutritive value of fortified biscuits. *Fd Sci.*, **7** (3), 82 – 86.

SUBRAHMANYAN, V. et al
1958 Manufacture of 'Nutro' biscuits, *Res. and Ind., New Delhi*, 3 (7), 178 – 179.

TOWNSEND, F.R. and BUCHANAN, R.A.
1967 Lactose-free milk solids in biscuit form. *Aust. J. Dairy Technol.*, 22 (3), 139 – 143.

Indigenous foods

CHAUDHRI, A.B. and MULLER, H.G.
1970 Chapaties and chapati flour. *Milling,* **152** (November 1970), 22 – 25.

GOWRI SUR et al Partial replacement of cereals by Mysore flour. *Bull. cent. Fd technol. Res. Inst., Mysore,* **3**, 85 – 87.
1954

RATHOD, K.L. and WILLIAMS, S.W.
1970 Consumer acceptance of chapatis containing soybean flour. *Indian J. agric. Econ.,* **25** (4), 68 – 72.

Pasta products

BALU, V. and PARPIA, H.A.B.
1958 Tapioca macaroni goes to the people. *Cent. Fd Technol. Res. Inst., Mysore; Food Science Extension Service Bull.* No. 1, 45 pp.

DORAISWAMY, T.R. et al
1961 Studies on enriched tapioca macaroni products. Part V Supplementary value to the diet of weaned infants and young children. *Fd Sci.,* **10** (12), 389 – 393.

DORAISWAMY, T.R. et al
1961 Studies on enriched tapioca macaroni products. Part VI Supplementary value to the diet of school children. *Fd Sci.,* **10** (12), 393 – 397.

GOPALAKRISHNA, N. et al
1961 Studies on enriched tapioca macaroni products. Part III Overall growth promoting value. *Fd Sci.,* **10** (12), 383 – 385.

KANTHA, J. et al The effect of replacing rice in the diet by tapioca – macaroni on the metabolism of nitrogen, calcium and phosphorus in children. *Fd Sci.,* **7** (9), 253 – 254.
1958

NARAYANAN, K.M. et al
1960 Effect of processing and cooking on the nutritive value of 'Nutro' macaroni (protein enriched maraconi). *Fd Sci.,* **9** (5), 159 – 162.

RAJASEKHARAN, N. et al
1960 Keeping quality of tapioca and 'Nutro' macaroni. *Fd Sci.,* **9** (7), 240 – 243.

SUBRAHMANYAN, R. et al
1958 Tapioca macaroni: pilot plant production. *Res. and Ind., New Delhi,* **3** (10), 270 – 275.

SUBRAHMANYAN, V. et al
1961 Studies of enriched tapioca macaroni products. Part I Development of new formulations and pilot plant studies. *Fd Sci.,* **10** (12), 379 – 381.

SUBRAHMANYAN, V. et al
1963 Protein – rich macaroni products based on peanut flour. *J. Proc. Oil Technol. Ass India,* **18** (Part II), 211 – 218.

SUBRAHMANYAN, V. et al
1966 Processing of tuber flours with special reference to cassava (tapioca) into enriched macaroni type products. *Int. Congress of Food Science and Technology, London, 18–21 September 1962,* **4**, 653 – 678.

VENKATA, R.S. et al
1961 Studies on enriched tapioca macaroni products. Part II Effect of processing on the protein efficiency ratio. *Fd Sci.,* **10** (12), 381 – 383.

VENKATA, R.S. et al
1961 Studies on enriched tapioca macaroni products. Part IV Effect of partial replacement of rice on the nutritive value of poor rice diet. *Fd Sci.,* **10** (12), 386 – 389,

WIE HAN KWEE et al
1969 Quality and nutritive value of pasta made from rice, corn, soya and tapioca enriched with fish protein concentrate. *Cereal Chem.,* **46** (1), 78 – 84.

Grain substitutes

BAINS, G.S. et al
1954 Investigations on grain substitutes. II storage quality of grains from blends of tapioca and groundnut. *Bull. cent. Fd technol. Res. Inst., Mysore,* **3** (7), 183 – 186.

SUBRAHMANYAN, V., RAMA RAO, G. and SWAMINATHAN, M.
1950 Investigations on the preparation, properties and nutritive value of rice substitutes from tubers and millets. *J. scient. ind. Res.,* **9B** (10), 259 – 261.

SUBRAHMANYAN, V. et al
1954 Rice substitute. *Nature, Lond.,* **174** (4422), 199 – 201.

SUBRAHMANYAN, V. et al
1954 Grain substitutes. *Bull. cent. Fd technol. Res. Inst., Mysore,* **3** (7), 162 – 165.

SUBRAHMANYAN, V. et al
1954 Investigations on grain substitutes. I Production of round grain from blends of tapioca and groundnut. *Bull. cent. Fd technol. Res. Inst., Mysore,* **3** (7), 180 – 183.

SUBRAHMANYAN, V. et al
1954 Investigations on grain substitutes. V The nutritive value of synthetic rice. *Bull. cent. Fd technol. Res. Inst., Mysore,* **4** (3), 55 – 57.

SUBRAHMANYAN, V. et al
1958 The effect of replacement of rice in a poor vegetarian diet by tapioca macaroni on the general health and nutritional status of children. *Br. J Nutr.,* **12** (4), 353 – 358 and *Fd Sci.,* **7** (4), 87 – 89.

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